

XXIV.—NEW ENGLAND SPIDERS OF THE FAMILY CINIFLONIDÆ.

By J. H. EMERTON.

THE spinning organs of the Ciniflonidæ differ from those of all other spiders. They have in front of the usual spinnerets an additional spinning organ, the *cribellum*, with spinning tubes like the other spinnerets, but much finer, and they have on the metatarsus of each hind leg a row of stiff hairs, the *calamistrum*, by which the thread is combed from the cribellum in a loose curly band. This band of loose thread forms part of every cobweb made by these spiders (Pl. x, fig. 1g.) and is easily distinguished in new webs by its width and white color and in old webs by the amount of dust which it collects.

The feet have three claws and some species have a few curved and toothed spines under the claws, like *Epeiridæ* and *Therididæ*. The tracheæ are large and open in a wide slit in front of the cribellum.

The colors are generally dull brown and grey. A double row of oblique light markings on the back of the abdomen, which shows most distinctly in *Amaurobius*, is in a modified form the usual marking of the abdomen throughout the family, often varying greatly in shape in the same species.

These spiders were first placed together in one family by Blackwall, who in 1839 noticed their peculiar webs and spinning organs. Before that time they had been scattered among various families according to their size, form, and habits. They have been treated in the same way by Thorell in his book on the genera of European spiders, and by Menge in the spiders of Prussia. Simon divides the French species into two families, *Dictynidæ* and *Uloboridæ*. Bertkau in his latest revision of the family, in 1882, carries the division into families still further and unites them all into a sub-order, *Cribellata*.

I have followed Blackwall in considering the group as one family, and use his name *Ciniflonidæ*. The sub-family *Uloborinæ* of Thorell

J. Blackwall. On the number and structure of the mammulæ employed by spiders in the process of spinning. Trans. Linn. Soc. London, vol. xviii, 1839.

P. Bertkau. Cribellum and Calamistrum. Archiv für Naturgeschichte, 1882.

I use in the same sense, transferring it from the *Epeiride* to this family.

Several of the spiders described by Hentz under the name of *Theridion* are probably *Dictyna*. Of these, *T. sublatum*, *morologum*, and *foliaceum* belong to this genus without much doubt, though I cannot identify them with any species here described.

Blackwall mentions among spiders from Canada, *Ergatis* (*Dictyna*) *diligens*, var. *annulipes*, Ann. and Mag. of Nat. Hist., 1871.

B. G. Wilder describes the webs and habits of *Hyptiotes cavatus* under the name *H. Americanus*, in Popular Science Monthly, 1875.

E. Keyserling has described in Transactions of the Zool. Botan. Gesellschaft of Vienna, 1881 to 1884, the following species: *Dictyna sedentaria*, Baltimore, Coll. of L. Koch. *D. voluptis*, Museum, Cambridge, Mass. *D. volucripes*, Museum, Cambridge, Mass. *D. foliata*, Colorado, Vienna Museum. *D. vittata*, Washington, D. C., Warsaw Museum. *D. arundinaceoides*, Cañon City, Colorado, Coll. of G. Marx.

Dictyna Sundevall.

The genus *Dictyna* is composed of small spiders that live in loose webs of various shapes on fences and on plants, especially on the ends of stalks and among the flowers of *Solidago*, *Spiraea*, and other slender plants with clusters of small flowers.

The head is generally high, but not so wide as in *Amaurobius*. The sternum is very wide and convex and the labium large, often nearly as long as the mandibles. The tracheæ are large and the opening generally distinct. The difference between the sexes in most species is very great. The male palpi are very large and the palpal organs conspicuous. The tibial joint of the male palpi has on the outer side a process with two short spines. The mandibles of the males are bowed outward (Plate ix, fig. 2d) and are much longer than those of the female. They are bent forward at the tips, and at the base of each mandible is a short tooth projecting forward. Plate ix, fig. 2b.

The colors are usually dull yellow and brown covered with white or gray hairs. The cephalothorax is usually lighter in front and dark at the side, and the abdomen has a double row of light markings in the middle on a dark ground, but these markings are extremely variable even in the same species. Pl. ix.

The webs of *Dictyna* usually radiate irregularly from a hole or hiding place where the spider hangs. Some species, living on walls,

make a round patch of web with the hole near the center, but usually the shape of the web depends on that of the plant on which it is made. The principal threads of the web, if they are parallel or radiating slightly, are often crossed by a number of parallel short threads, like a segment of a web of *Epeira* (Pl. XI, fig. 3) and the curled band is carried back and forth on these as in the figure of the web of *Amaurobius*. Pl. X, 1g.

Dictyna muraria, new sp.

PL. IX, FIGURES 1 TO 1g.

Length about 3^{mm}. The cephalothorax is dark brown, a little lighter on the top of the head with a few gray hairs in longitudinal rows. The abdomen resembles that of *D. volucripes* Keys, but the middle dark markings are wider in front and more broken behind. In the middle of the front half is a wide dark patch, extending about to the middle of the abdomen. Behind this are two rows of dark spots connected by transverse lines, more or less complete, forming an *Epeira*-like marking. Pl. IX, figs. 1 to 1e.

The markings of this species and of *volucripes* vary greatly, so that they often cannot be distinguished by them. The metatarsus of the hind legs is nearly straight, not so much curved as in *volucripes*.

The males are darker, but usually have the same markings. Their abdomen is smaller than that of the females, but the cephalothorax is fully as large. The male palpi resemble those of *volucripes* Keys. The tibia is similar in shape, but is proportionally longer, and the two-spined process shorter than in *volucripes*. Pl. IX, 1f, 1g.

This spider is found all over New England. It is the most common species on fences, but is found also on plants, and, in winter, under leaves. It sometimes tries to fly, oftener in the spring than in the fall, which is the usual flying time of most spiders. I have specimens from Mt. Washington, N. H.; Portland, Me.; Salem, Mass.; Albany, N. Y.; New Haven, Conn.; Wood's Holl, Mass.; and several places around Boston.

A female in the Museum of Zoölogy, Cambridge, Mass., named by Keyserling, *D. arundinaceoides* Keys., is perhaps this species. It has the abdomen very much distended, so that the epigynum shows much plainer than usual. The spider first described by Keyserling as *D. arundinaceoides* came from Colorado, and I have not seen it and do not feel sure enough of its identity to adopt the name for this species.

Dictyna volucripes Keyserling, Zoöl. Botan. Gesellschaft, Vienna, 1882.

PL. IX, FIGURES 2 TO 2f AND PL. XI, FIGURE 3.

Female, 3.5^{mm} long or longer. The male is nearly as large, but the cephalothorax is larger and the abdomen smaller.

The cephalothorax is dark reddish brown, and partly covered with white or gray hairs, most of them arranged in several lines from the dorsal groove to the eyes.

The abdomen has an irregular dark figure in the middle, narrow in front and widening backward. On each side of this is a light gray area, which becomes yellow in alcohol, and below these the sides and under surface of the abdomen are dark brown with some light markings. The abdomen is covered with gray hairs which modify the color. The legs are brown, usually lighter than the thorax, and covered with gray hairs.

The male is a little darker than the female. The male palpi are short, and large at the end. The patella is as wide as long. The tibia is a little longer than the patella and widened on the outer side at the distal end, so as to be as wide there as long. The two-spined process is as long as the tibia is wide, and is on the upper side of the tibia. The tarsus and palpal organ are large. Pl. ix, figs. 2e, 2f. The two spined process varies in form. It is usually curved forward, but in some specimens is nearly straight.

This species lives most commonly in thick and irregular webs on the ends of plants. The dried tops of *Spiraea* and *Solidago* are favorite places for it. It also lives occasionally on fences. All over New England.

Dictyna longispina, new sp.

PL. IX, FIGURE 4.

This species resembles *volucripes*, but is a little smaller. The markings of the abdomen are similar, but the cephalothorax and legs are lighter and redder.

The plainest difference of this species from the others is in the shape of the tibia of the male palpus. This is very long, as long as the femur, and stouter. The two-spined process is as long as the tibia, and extends backward nearly parallel to it. Pl. ix, fig. 4. The palpal organ extends farther backward than usual. The end of the tube and the accompanying process extending in a spiral nearly to the base of the tibia.

A young female, similarly marked and colored, accompanies the male and is probably the same species.

Meriden, Conn., one male and one female.

Dictyna bostoniensis, new sp.

PL. IX, FIGURES 3 TO 3d.

This is a rather large species, measuring 4^{mm} or more in length, but the cephalothorax is small and the abdomen much larger than in most species. The legs are whitish. The cephalothorax of the female is the same color in the middle, but darker and streaked with radiating brown lines on the sides. The abdomen is white with gray or black markings. Pl. ix, figs. 3*b*, 3*c*, 3*d*. In the middle of the front half of the abdomen is an irregular dark stripe extending over the first and second segments. Behind this are two rows of irregular spots, about one-third the width of the abdomen apart. The sides are marked by a few dark spots in broken oblique lines. The sternum and under side of the abdomen are white, with a few irregular dark spots. The spider resembles a piece of bird dung.

The cephalothorax of the male is larger and darker colored. The male palpi are short and slender. The tibia is short and as wide at the distal end as it is long. The two-spined process is short and on the outer side. The tarsus and palpal organ are small. Pl. ix, fig. 3*a*.

In 1873, this spider lived in great numbers on the iron fence around the public garden in Boston, making webs in corners, with an open tube in which the spider stood. Single specimens were found in Beverly and Brookline. In 1886, it was rare on the public garden, but common on the fences of the Back Bay park on Beacon street. I have not found it in other parts of New England.

Dictyna minuta, new sp.PL. IX, FIGURES 5, 5*a*.

About 2^{mm} long. The markings are like those of *D. muraria*, but the colors are lighter and redder than in that species, and the only two specimens are much smaller.

The legs are very light brownish yellow, darker toward the base. The sternum and labium are reddish brown, and both are large and wide in proportion to the size of the spider.

The tibia of the male palpus is about twice as long as the patella, and nearly straight. The two-spined process is short and turned slightly forward. The spines are large and black. The point of the palpal organ is long and slender and twisted loosely. In both specimens it reaches backward half the length of the tibia. Pl. ix, figs. 5, 5*a*.

Two specimens only, from Hamden, Conn., and Providence, R. I.

Dictyna rubra, new sp.

PL. IX, FIGURE 7.

Female 2.5^{mm} long. The color is more red than in the other species. The cephalothorax and legs are light orange-brown. The abdomen is darker reddish brown, with several yellow cross lines on the hinder half, and in some individuals a yellow patch on the front half. The sternum, maxillæ, and mandibles are light, like the legs.

The male palpi are moderately large. The tibia is a little longer than wide, and as thick at the base as at the tip. The two-spined process is on the upper side of the tibia, close to the base. It is as long as the tibia is thick. The tarsus is small. Pl. ix, fig. 7.

The abdomen is more pointed behind than in most species.

It lives on plants, but I do not know its web. Common in eastern Massachusetts and around New Haven, Conn.

Dictyna cruciata, new sp.

PL. IX, FIGURES 6, 6a.

This is the lightest colored species. The cephalothorax of the female is yellowish white in the middle and light brown at the sides. In the male the whole cephalothorax is dull yellow.

The abdomen is white in the middle, the color spreading down the middle of each side, forming in many individuals a cross-shaped marking (Pl. ix, fig. 6). The sides are light brown. The legs are yellowish white.

The male palpi are large and the palpal organs wide. The tibia is short, not much longer than wide, and the two spines are short and on a low process of the tibia. Pl. ix, fig. 6a.

Eastern Mass. ; New Haven, Conn.

Dictyna voluptis Keyserling, Zoöl. Botan. Gesell., Vienna, 1882.

PL. IX, FIGURES 8 TO 8c.

This is one of our most common spiders throughout the summer. It lives under leaves and between the twigs of trees and shrubs of all kinds, making small and thin webs.

The female is about 3^{mm} long. The legs and front part of the cephalothorax are yellowish white. The sides of the cephalothorax are brown. The abdomen has usually an irregular light yellow marking in the middle and is light brown or reddish at the sides. Pl. ix, fig. 8. Some individuals are without the yellowish marking on the back and have the abdomen brownish all over, covered with whitish hairs. The reddish markings all become redder in alcohol. The sternum and under side of the abdomen are light yellow.

The colors of the male are very different. The whole cephalothorax is orange-brown, not much darker at the sides. The abdomen is reddish brown, darker than in the female, with only a little yellow in the middle, and sometimes none. The legs are darker yellow than in the female.

The males and females are about the same size, but differ in form as much as they do in color. The front of the head is low in both sexes, and rises backward to its highest point midway between the eyes and the dorsal groove. In the males the mandibles are so long that the distance from the top of the head to the end of the mandibles is as great as the length of the cephalothorax. The male mandibles are concave in front and bowed widely apart in the middle. Even the females have the mandibles a little concave in front.

The male palpi are long and large. The tibia is twice as long as wide; thickened at the end, and curved downward. The two-spined process is short and a little in front of the base of the tibia. Pl. IX, fig. 8c.

The palpal organ is unusually large, and the long tube can be seen passing around it under the edges of a large thin appendage. Pl. IX, fig. 8a, 8b.

The webs are spread under leaves or between twigs.

I have twice seen the pairing of this species. In one case the female stood across a forked twig and the male reached up from below, his head being under hers and his mandibles parallel to her sternum. In the other the male and female stood head to head in the web, the cephalothorax of the female being tipped up in front, and resting upon the head and mandibles of the male.

Common all over New England. In winter they are often found under leaves, half grown, and soon get to their growth when warm weather begins. Several small, flat egg-cocoons are fastened under a leaf and there may be several broods in each season.

Dictyna frondea, new sp.

PL. IX, FIGURES 9, 9a.

This species is a little smaller than *volupis* and is similarly colored in the female, except that it is usually a little darker and less red. The cephalothorax is light brown, a little lighter in the middle of the head, but not so much so as *volupis*. The abdomen is brown at the sides and yellow in the middle. The yellow stripe is narrower and straighter than in *volupis*, and often forms a regular herringbone figure. Pl. IX, fig. 9. The under side of the abdomen

is nearly as dark as the upper side, and the sternum has the same color while *volupis* is usually light colored beneath.

The males differ less from the females than in *volupis*. They are colored a little darker than the females. The light stripe on the abdomen is narrower and in some individuals wanting. The male palpi are long and slender. The tibia is more than twice as long as wide. The two spined process is very small and close to the base of the tibia. The tarsus is smaller than in *volupis*, and the palpal organ very much smaller and more simple. Pl. ix, fig. 9a.

On grass and low bushes all over New England.

This species (or *D. volupis*) is probably Hertz's *Theridion foliaceum*.

Amaurobius C. Koch.

The genus *Amaurobius* contains our largest spiders of this family. In general appearance they resemble the stouter species of the genus *Tegenaria*, but do not have the long upper spinnerets of that genus. The head is large and high, and wide in front. The eyes are in two rows, only slightly curved, and are all small and of nearly the same size.

The maxillæ are long, and at the tip curve inward a little over the labium. The labium is longer than wide and a little narrowed at the tip. The mandibles are very large and strong.

The whole body is thickly covered with fine, short hair, giving it a soft velvet-like appearance. The spines on the legs are small and concealed by the hair.

The calamistrum consists of two rows of hairs, those of the outer row being much curved and close together, and those of the inner row three or four times as far apart. Pl. x, fig. 1f. The cribellum is long and narrow and divided in the middle. Pl. x, fig. 1e.

The colors of all our species are much alike. The cephalothorax and legs are dark brown, except in freshly moulted or young specimens, and the abdomen is dark gray with a double row of oblique light markings.

The webs are large and loose, often filling a cavity in a rotten log or under stones. There appears to be little regularity in the shape of the web or arrangement of the threads. The whole web is made of smooth silk and the band of curled threads is afterwards attached to parts of it as in Pl. x, fig. 1g.

The sexes are about equal in size. The male palpi are large. Their tibial joints are short and wide and furnished with large processes of various shapes.

Amaurobius sylvestris, new sp.

PL. X, FIGURES 1 TO 1g.

This is the common *Amaurobius* all over New England. The female is 10^{mm} long with the cephalothorax 5^{mm} long. The head is nearly as wide as the thorax. It is low in front and rises to its highest point half way to the dorsal groove. The cephalothorax is dark brown, darkest on the front of the head. The legs are dark brown, usually lighter than the thorax. In the young the colors are all much paler.

The abdomen is oval, widest behind. It is dark greenish gray with a double row of oblique yellow or white markings on the hinder half, and two curved markings of the same color on the front. These markings run together, forming a figure which varies greatly in form and size in different individuals. Pl. x, fig. 1.

The males differ but little from the females. The male palpi are large. The tibia is short and wide and has three long processes, the inner of which is slender and pointed and nearly twice as long as the tibia (Pl. x, figs. 1a, 1b.) but not so much curved as in figures of the European *A. claustrarius*.

The epigynum is small, the middle lobe is small and the side lobes meet behind so as to completely surround it (Pl. x, fig. 1c) which is very different from the epigynum of *A. claustrarius* as figured by Koch.

This species lives under stones, under leaves, and in the hollows of rotten trees and stumps. Fig. 1g is part of a web, showing the arrangement of the curled threads.

All over New England. In the White Mountains up to the highest trees.

Three specimens of this species in the museum of Comp. Zoölogy, Cambridge, are named by Keyserling *A. claustrarius*, which this species closely resembles. I have only young *claustrarius* for comparison, but judging by descriptions and figures, especially those of L. Koch in Abh. Nat. Gesellsch. of Nuremberg, 1868, I do not believe them the same species.

Amaurobius ferox (Walek.) Koch., *Ciniiflo ferox* Blk.

PL. X, FIGURES 3 TO 3c.

This is our largest species. It is found only about houses and cellars, and is probably imported, as it is a common spider in Europe.

The female is 12^{mm} long. Cephalothorax 6^{mm} long, 4^{mm} wide. The head is 3^{mm} wide and highest half way between the eyes and the dorsal groove.

The cephalothorax is yellowish brown, darkest in front and nearly black around the eyes. The legs are the same color as the thorax, darkest toward the tips. The abdomen is dark gray with light yellowish marks on the back. On the front half of the abdomen are a middle and two lateral stripes and behind these four or five pairs of oblique markings.

The eyes are all small and about equal in size. The front row is about half the width of the head and the eyes equidistant. The upper row is longer and the lateral eyes considerably farther from the middle ones than these are from each other. The mandibles are large and strong.

The calamistrum is a double row of spines, half the length of the hind metatarsus.

The male differs but little from the female, except that the abdomen is a little smaller and the front legs longer. The male palpi are very large. The tibia is as short as wide. It is bent inward, and has a large spine on the outer and another on the upper side, each nearly as long as the tibia. On the inner side is a third smaller spine. Pl. x, figs. 3*a*, 3*b*, 3*c*. The tarsus and palpal organ are large and round. Fig. 3*a*. The epigynum is large and dark colored. The middle lobe is large and enclosed by the others only at the sides. Pl. x, fig. 3.

Boston, Salem, Beverly, Mass.; Providence, R. I.; Albany, N. Y.; New Haven, Conn., in cellars and houses.

Amaurobius tibialis, new sp.

PL. X, FIGURES 3 TO 3*c*.

Female 8^{mm} long.

The cephalothorax is light brownish yellow, not darker in front. The legs are of the same color and not much darker at the tips.

The light markings on the abdomen are united into a middle band with oblique branches at the sides on the hinder half.

The middle lobe of the epigynum is entirely concealed, the lateral lobes divided by a groove in the middle. Pl. x, fig. 2.

The middle process on the tibia of the male palpus is short, but the other processes are much larger than in the other species. The outer one is about as long as the tibia is wide, and has a large hook on the inner side. The inner process is long and slender, curving over the back of the tarsus and extending nearly to the end of it. Pl. x, figs. 2*a*, 2*b*.

This species is found on Mt. Washington, N. H., up to the highest trees.

Titanœca Thorell.

Titanœca americana, new sp.

PL. X, FIGURES 4 TO 4d.

This spider resembles *T. quadriguttata* of Europe, but is usually without markings on the abdomen. The female is 5 or 6^{mm} long, resembling in size and shape the common *Scatoda borealis*, from which, however, it is readily distinguished by its black color.

The cephalothorax is dull orange-color, blackish around the edges and toward the front. The rest of the body is deep black and covered with long hair, except in some individuals a few light gray spots in pairs on the abdomen.

The sternum is as wide between the second legs as it is long. The labium is as wide as long, a little narrowed and rounded at the tip. The maxillæ are nearly straight on the inner edges not curved inward at the tips, as in *Amaurobius*. The head is not so wide as in *Amaurobius*. The eyes have nearly the same arrangement, but are proportionally larger. Pl. x, fig. 1. The spinnerets are short.

The cribellum is divided in the middle as in *Amaurobius*, and the calamistrum is like that genus.

The claws of the feet are large and strong, proportionally larger than those of *Amaurobius*.

Like most of the genus, this lives under stones in the driest and hottest places. Under the loose stones under the trap hills around New Haven and Meriden, Conn. it is common. I have a few from Mt. Monadnock, N. H., but have not found it elsewhere in New England.

Titanœca brunnea, new sp.

PL. X, FIGURES 5 TO 5c.

This species is about as large as *T. americana*, but is a little more slender and less hairy. The cephalothorax is light or dark brown, like dead oak leaves among which it lives. The joints of the legs are darker toward the distal ends. The abdomen is similarly colored, but becomes redder than the rest of the body in alcohol. Across the back are four or five lines of light yellowish spots, and there are larger irregular spots along the sides, as in many species of *Dictyna*. Pl. x, figs. 5, 5a. Under the abdomen between the spinnerets and epigynum are two large light spots. Fig. 5a.

Besides the color, the only plain difference between this and the black species is in the palpi of the female, which in this species have

the last two joints a little stouter than in *T. americana*. In both species the palpi are very spiny at the end, though the spines are concealed by hairs. I have found this species three times under leaves in woods near New Haven, Conn.

Uloborinæ Thorell.

These spiders have been classed by most authors among the *Epeiridæ* on account of their resemblance to *Tetragnatha*, and especially on account of their round, or at least radiate, webs. The arrangement of the eyes, the mouth parts, and the tracheæ are all different from the *Epeiridæ*. The spinning organs include the cribellum and calamistrum, like the other *Ciniflonidæ*, and the cross-threads of the webs are partly made of curly threads spun by the calamistrum and not covered with a liquid in drops like the webs of *Epeiridæ*.

The adhesive thread of these spiders is not made separately and attached to old threads as it is by *Amantrobium* and *Dictyna*, but both threads are spun at the same time. Pl. XI, figs. 2i, 2j show both sides of a piece of the cross-threads of the web of *Hyptiotes*.

Uloborus Latreille. *Veleda*, Blackwall. *Phillyra*, Hentz.

Uloborus plumipes Lucas = *Phillyra riparia*, Hentz.

PL. XI, FIGURES 1 TO 1f.

The female is about 5^{mm} long. Cephalothorax 1.5^{mm}. The cephalothorax is flat in front, and extends forward in the middle beyond the mandibles. Behind it is wide and swelled up on each side, where the abdomen hangs over it. Pl. XI, fig. 1b.

The abdomen is narrow and slightly notched in front and extends over the cephalothorax a quarter of its length. The abdomen is widest and highest a third of its length from the front, and at this point has a pair of humps.

The colors are very variable. A dark, plainly marked female has the femur and patella of the front legs dark brown or nearly black, and the tibia dark brown, except a white ring at the base; at the end of the tibia is a brush of coarse, dark brown hairs. The tarsus and metatarsus are white. In lighter individuals the color of the femur or tibia may be broken by a white ring near the middle. The other legs have femur, tibia and metatarsus dark brown, divided near the middle by a white ring. Patella and tarsus brown, lighter at the ends. The cephalothorax is dark brown with a narrow, indis-

tinged light line in the middle. In lighter individuals this stripe is wider.

The dorsal markings of the abdomen are more variable and less definite. On the front of the abdomen are two light spots, behind which are two very dark ones, sometimes united into one. Behind these are two white spots half as far apart as the humps and a little in front of them. The humps are generally dark on the inner side and light on the outer. Farther backward are two or three pairs of light spots, surrounded by a darker brown area, darkest in the middle and toward the spinnerets.

The sternum is brown, and the under side of the abdomen is dark in the middle and light at the sides. In lighter individuals most of these markings can be seen, the darker ones being light brown or yellow, and the lighter ones yellow or dirty white. In some no markings can be defined.

The first pair of legs is twice as long as the second, and much longer than the fourth pair.

The terminal joint of the palpus is more than twice as long as the one before it. The palpal claw is large, with two or three teeth. Pl. XI, fig. 1b.

The eyes are in two rows. The upper are largest and appear still larger on account of being surrounded by dark rings. Pl. XI, figs. 1a, 1b. They are on the top of the head, the lateral pair farthest back. The front row of eyes is close to the edge of the head, just over the mandibles.

The mandibles are small and rounded forward at the base. The maxillæ are as wide as long, with the front ends nearly square. The labium is triangular. (See figure of same parts in *Hyptiotes*, Pl. XI, fig. 2h.)

The male is much smaller than the female. The cephalothorax is more pointed in front and lower behind. The abdomen is not much larger than the cephalothorax and not so plainly humped as in the female. The legs are but little shorter than those of the female and the markings and colors are the same. The first tibia does not have a bunch of hairs at the end like the female. The palpal organ is nearly spherical, all the parts being wound closely together. Pl. XI, figs. 1d, 1e. The femur of the male palpus has, at the base, a short process on the outer side. Pl. XI, fig. 1f.

The webs are round and nearly horizontal, the cross-threads usually less regular than in webs of *Epeira*. The webs are commonly made between loose stones, but sometimes in low bushes. The cocoons are

half an inch long and quarter as wide, narrowed at both ends, and with numerous short points by which they are attached to the web around them. I have found them with the female under stones. The cocoons are light brown, and each female appears to make several of them. The cocoons are made in July.

This spider is found all over New England, but is not common anywhere. I have taken them from several places around Boston, Mass., in New Haven, Conn., and in Simsbury, Conn.

I have specimens of both sexes from the southern part of France, given me by Mr. E. Simon. It is found in Italy and Spain. The common *Uloborus* of the north of Europe (*U. walckenerius*) is a very different species.

Hyptiotes Wlk. = *Mithras*, Koch.

Hyptiotes cavatus.

PL. XI, FIGURES 2 TO 2*k*.

This peculiar spider is without much doubt the one described and figured by Hentz under the name of *Cylopodia cavata*, although he saw but six eyes and four spinnerets, and otherwise described it incorrectly.

Its habits have been well described by B. G. Wilder in the Popular Science Monthly, 1875, where he calls it *Hyptiotes americanus*.

This spider resembles a shortened *Uloborus*. The adult female is about 4^{mm} long, and is colored like the end of one of the dead pine branches among which it usually lives.

The cephalothorax is as broad as long, highest in the middle just behind the eyes, and hollowed behind under the front of the abdomen.

The abdomen is oval, a little flattened in front. On the back are four pairs of low humps, the second largest, on each of which are a few stiff hairs.

The arrangement of the eyes resembles that in *Uloborus*, but the eyes are farther apart and farther back on the thorax. Pl. XI, figs. 2, 2*a*.

The legs are short and thickest in the middle, tapering distinctly from the patella to the claws. The hind metatarsus bearing the calamistrum is curved inward on the outer side. The claws have three or four teeth and under the claws are a few curved spines, some of which are toothed as in *Epeira*. Pl. XI, fig. 2*e, f, g*. The palpal claw has four or five teeth.

The mandibles are very small and slightly arched forward near the base.

The maxillæ and libium are like those of *Uloborus*. (Pl. XI, fig. 2*h*.)

The spinnerets are long. The cribellum is small and not divided in the middle.

The male is about half as large as the female. The abdomen is much smaller and the humps lower. The palpal organ is very large. The tube is long and slender and extends one and a half times around the organ, supported by the edge of a thin appendage. At the tip it lies against two small flexible processes and over them is a large dark horn. The whole apparatus is so large as to cover the patella as well as the tarsus. Pl. XI, figs. 2*e*, 2*d*.

The epigynum is simple externally, but the inner tubes correspond in length to those of the palpal organs.

The colors of both sexes are various shades of brown, covered with white or gray hairs. The markings on the cephalothorax and legs are usually indistinct. The eyes are surrounded by black rings. The humps on the abdomen are usually darker than the rest of the back. Dark markings follow the dorsal vessel and two or three pairs of its branches. Other individuals have the front, and some the whole back of the abdomen very dark brown.

The web consists of four rays crossed by a dozen or more threads. The point where the rays meet is attached to a thread which extends to the spider's roost, usually the end of a twig. Here it holds by the hind feet and draws the thread tight with the fore feet. When an insect strikes the web the spider lets go with the hind feet, the elasticity of the web draws the thread out with a snap, and slides the spider along it toward the web. When it reaches the center it feels the rays to find where the insect is, runs out on the nearest one, covers the prey with silk, and carries it out of the web.

The making of this web is fully described by Wilder. Having finished the rays, the spider begins with the cross threads farthest from the center, walking along the upper ray until it is near enough the next to step across, then it crosses and walks outward again on the second ray. The new cross thread is elastic enough to shorten to the proper length when she reaches the point to attach it. When the cross thread is finished to the fourth ray, the spider walks back to the center and out on the upper ray to the point for beginning another.

This spider is common all over New England and the Middle States. I have seen cocoons near their webs, like that described by Wilder, but have never traced it to them or any other spider.

EXPLANATION OF PLATES.

PLATE IX. *Dictyna*.

- Figs. 1, 1a, 1b, 1c, 1d, 1e. Dorsal markings of different individuals of *Dictyna muraria*.
- Figs. 1f, 1g, Palpi of male *D. muraria*.
- Fig. 2, *D. volucripes*, sternum and mouth parts: 2a, side of female; 2b, side of male; 2c, front of head and mandible of female; 2d, front of head and mandible of male; 2e, 2f, palpal organ and male tibia of different individuals.
- Fig. 3, 3a, palpus of male *D. bostoniensis*; 3b, 3c, 3d, dorsal markings of *D. bostoniensis*.
- Fig. 4, Tibia of male palpus of *D. longispina*.
- Fig. 5, 5a, Male palpus of *D. minuta*.
- Fig. 6, Common dorsal marking of *D. cruciata*; 6a, male palpus of *D. cruciata*.
- Fig. 7, Palpus of male *D. rubra*.
- Fig. 8, Dorsal markings of *D. volupis*; 8a, 8b, male palpus of *D. volupis*; 8c, tibia of male palpus seen from below.
- Fig. 9, Dorsal markings of abdomen of *D. frondea*; 9a, palpus of male of *D. frondea*.

PLATE X. *Amaurobius*.

- Fig. 1, *Amaurobius sylvestris*, $\times 4$; 1a, tibia and patella of right palpus of male; 1b, tarsus and palpal organ; 1c, epigynum; 1d, foot; 1e, cribellum; 1f, calamistrum; 1g, part of web showing the arrangement of the curled threads.
- Fig. 2, *Amaurobius tibialis*, epigynum; 2a, upper side of right palpus of male; 2b, outer side of the same.
- Fig. 3, *Amaurobius ferox*, epigynum; 3a, palpal organ of male; 3b, tibia of male palpus, upper side; 3c, the same, outer side.
- Fig. 4, Head of *Titanæca americana*; 4a, 4b, palpus of male; 4c, palpus of female; 4d, cribellum.
- Fig. 5, Dorsal markings of *Titanæca brunnea*; 5a, under side of abdomen of the same; 5b, sternum, maxillæ and labium; 5c, palpus of female.

PLATE XI.

- Fig. 1, *Uloborus plumipes*, side of female; 1a, top of cephalothorax and eyes; 1b, side of cephalothorax and mouth parts; 1c, male; 1d, 1e, palpus of male.
- Fig. 2, *Hyptiotes cavatus*, $\times 8$, female; 2a, the same, male; 2b, calamistrum; 2c, palpus of male; 2d, palpal organ from below; the place of the large terminal process is shown by a dotted line; 2e, f, g, first and second feet; 2h, labium and maxillæ; 2i, 2j, thread of web of *Hyptiotes cavatus*, showing opposite sides; 2k, Diagram of web.
- Fig. 3, Web of *Dictyna volucripes*.